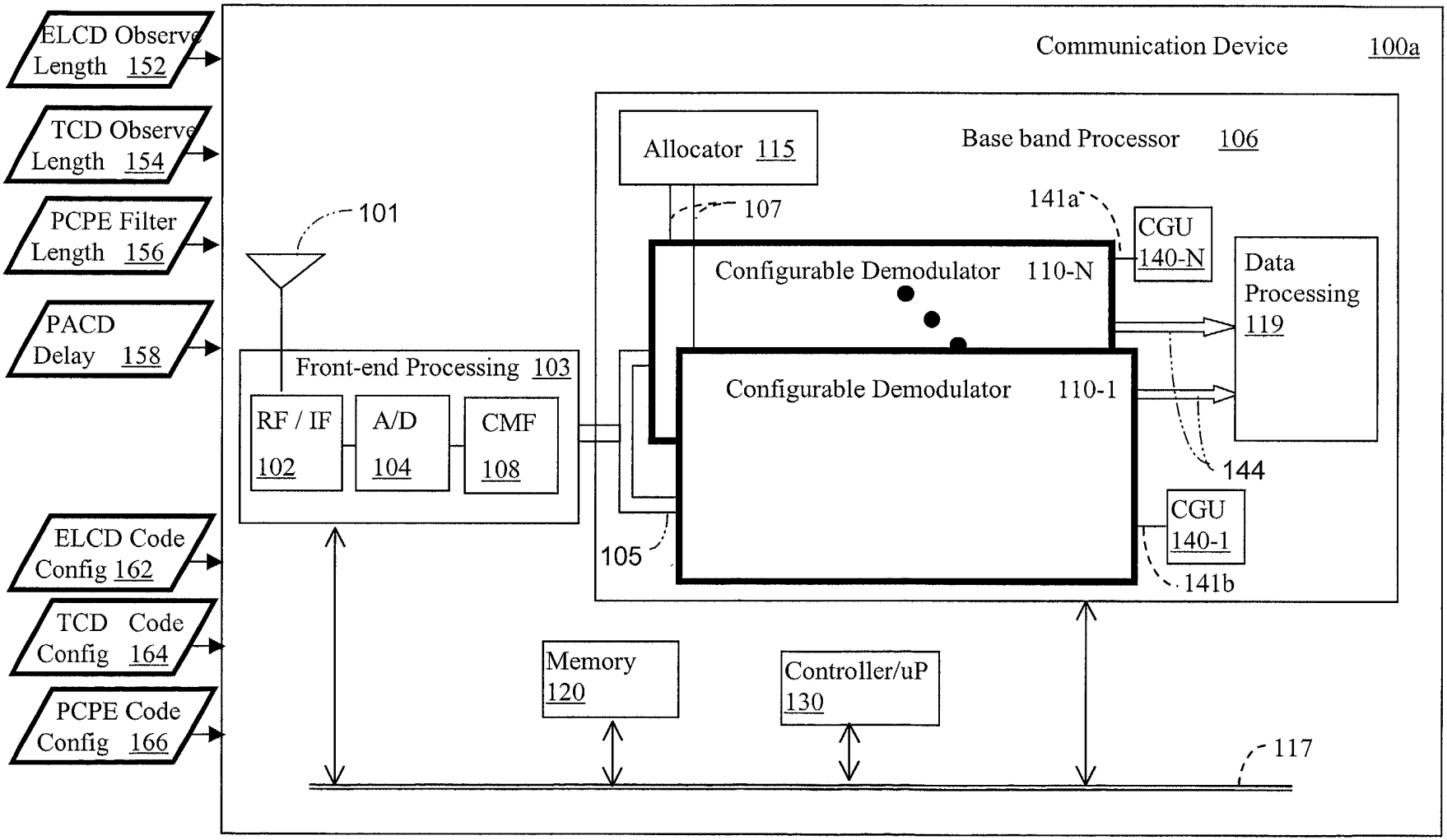
ELCD Observe Length 152
TCD Observe Length 154
PCPE Filter Length 156
PACD Delay 158
ELCD Code Config 162
TCD Code Config 164
PCPE Code Config 166
Communication Device 100a
Allocator 115
Base band Processor 106
101
107
141a
CGU 140-N
Configurable Demodulator 110-N
Data Processing 119
Front-end Processing 103
RF / IF 102
A/D 104
CMF 108
Configurable Demodulator 110-1
144
CGU 140-1
105
141b
Memory 120
Controller/uP 130
117

FIGURE 1A

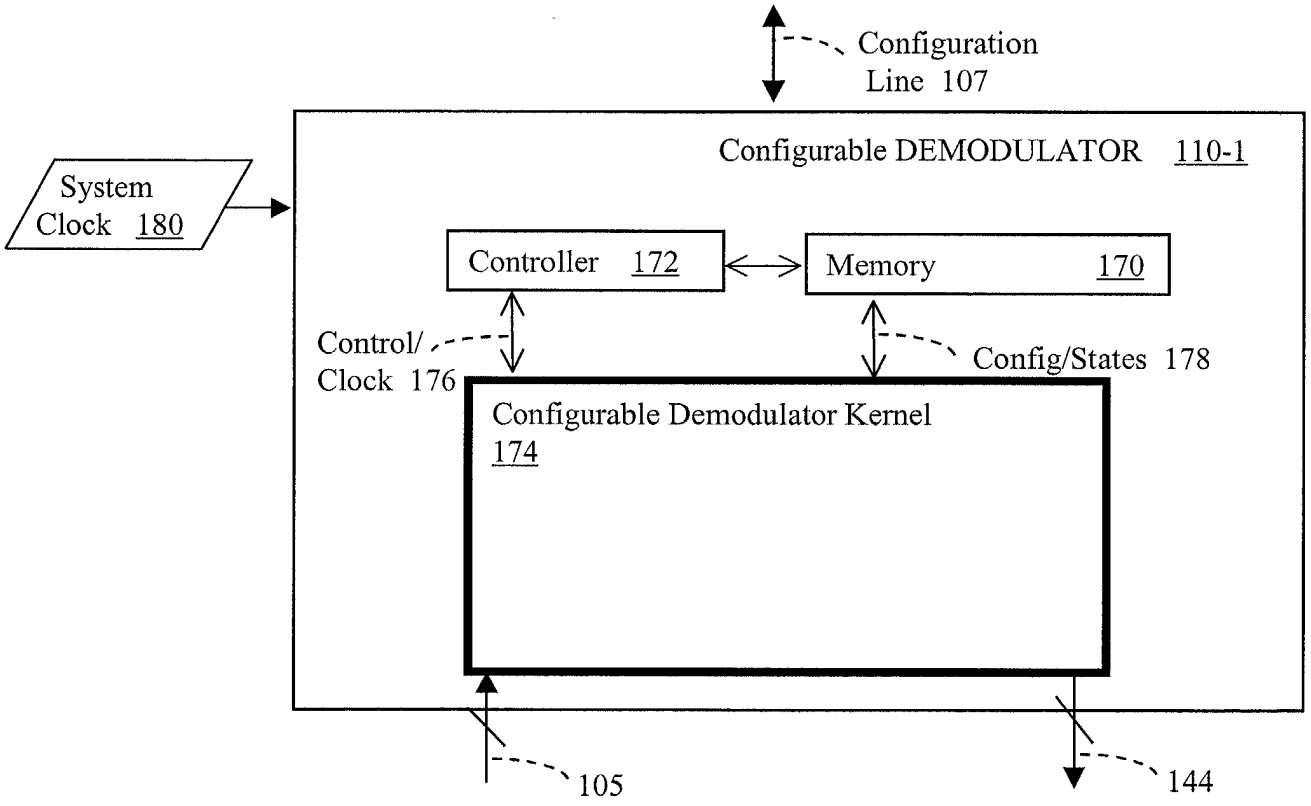
Configuration
Line 107
Configurable DEMODULATOR 110-1
System
Clock 180
Controller 172
Memory 170
Control/
Clock 176
Config/States 178
Configurable Demodulator Kernel
174
105
144

FIGURE 1B

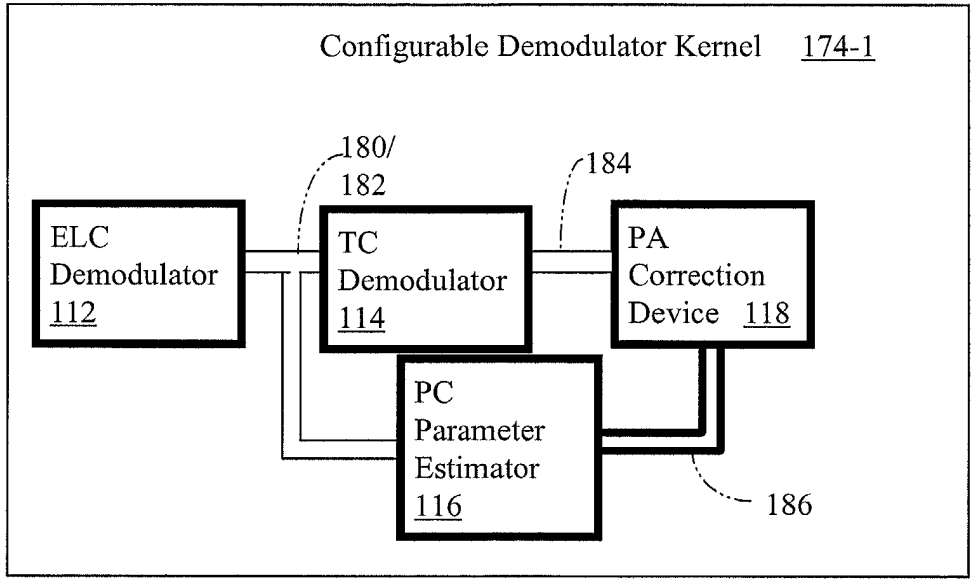
Configurable Demodulator Kernel 174-1
180/
182
184
ELC
Demodulator
112
TC
Demodulator
114
PA
Correction
Device 118
PC
Parameter
Estimator
116
186

FIGURE 1C

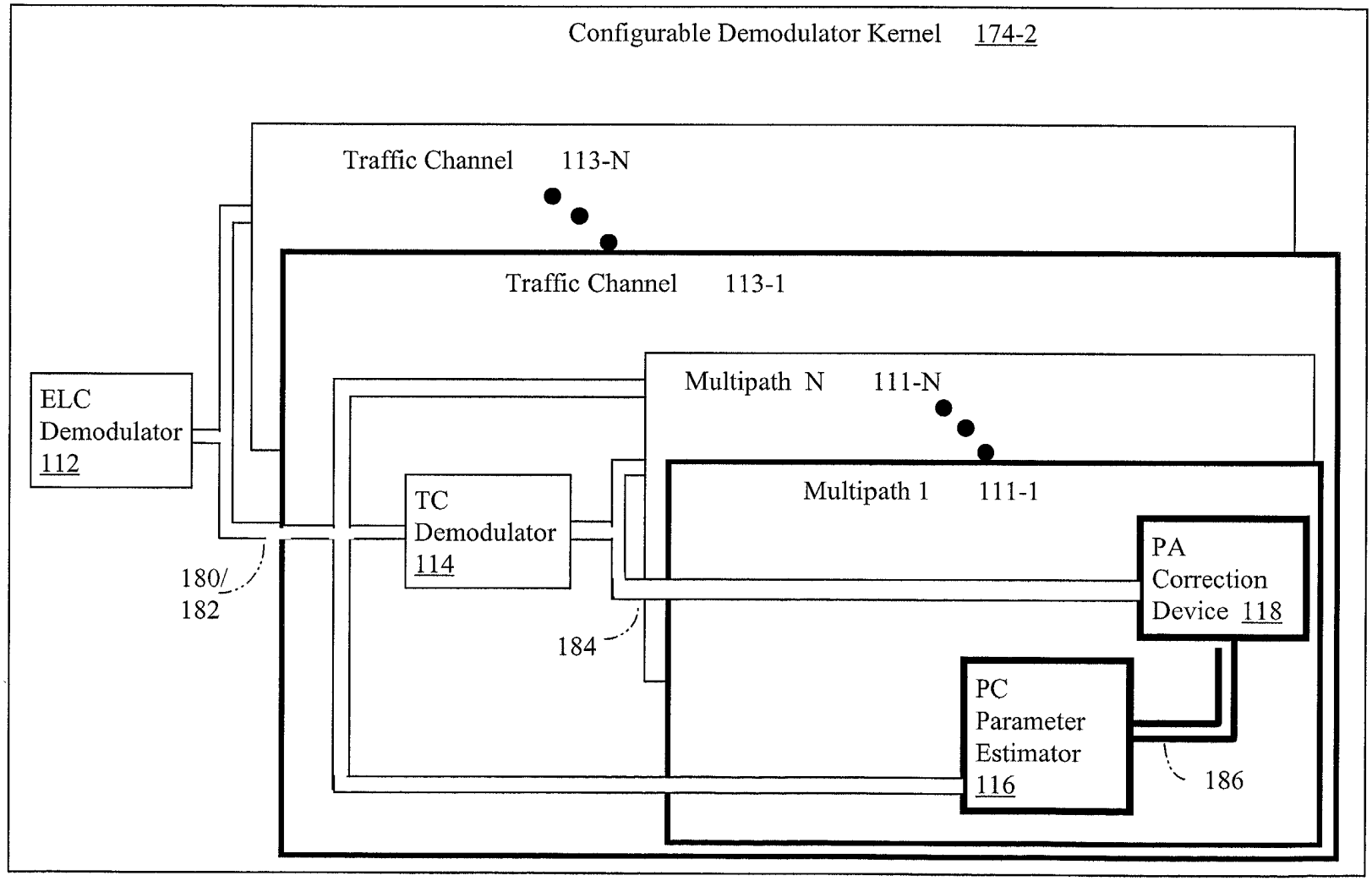
Configurable Demodulator Kernel 174-2
Traffic Channel 113-N
Traffic Channel 113-1
ELC Demodulator 112
Multipath N 111-N
Multipath 1 111-1
TC Demodulator 114
PA Correction Device 118
PC Parameter Estimator 116
180/ 182
184
186

FIGURE 1D

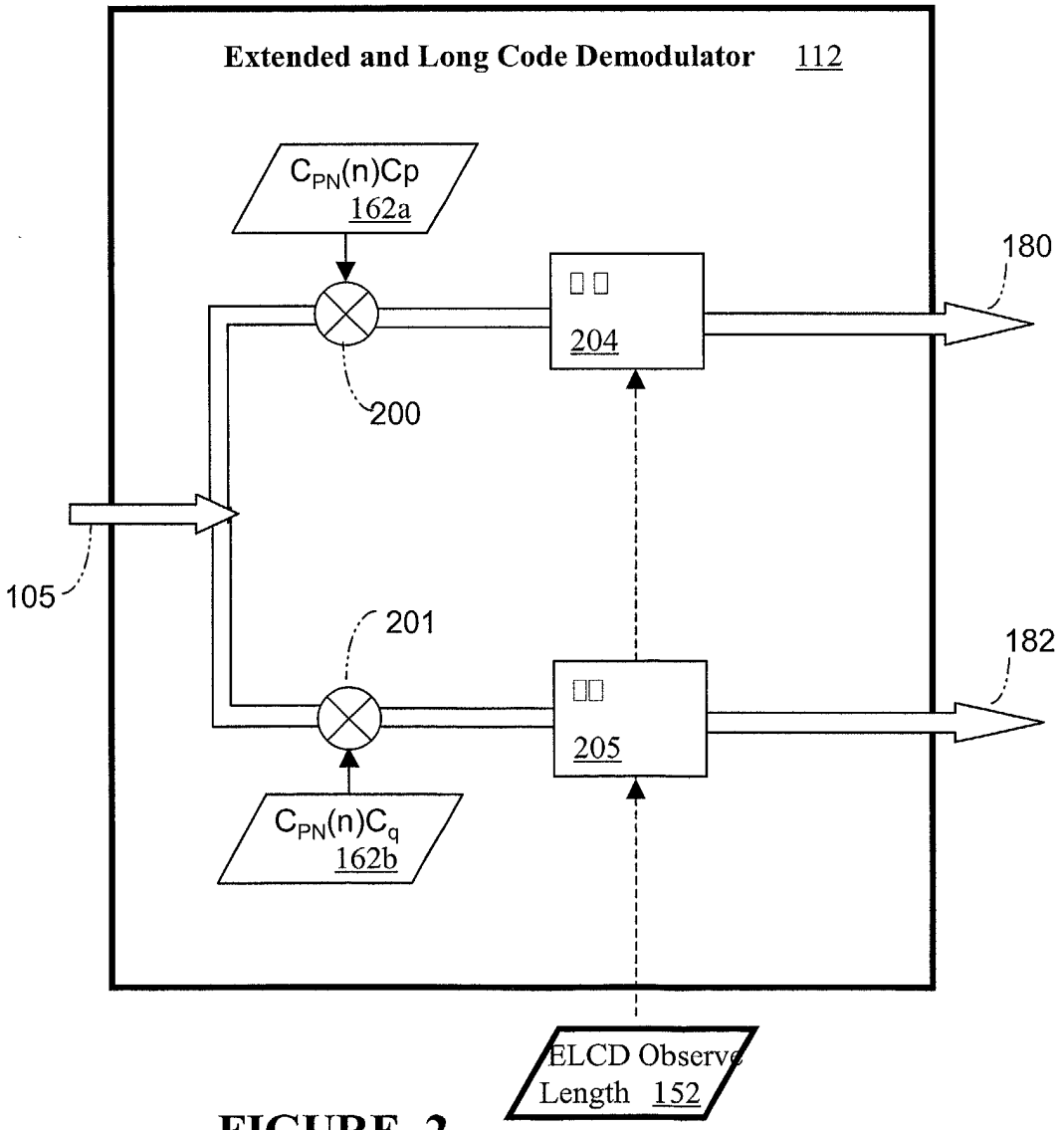
Extended and Long Code Demodulator 112
$C_{PN}(n)Cp$
162a
180
204
200
105
201
182
205
$C_{PN}(n)C_q$
162b
ELCD Observe
Length 152

FIGURE 2

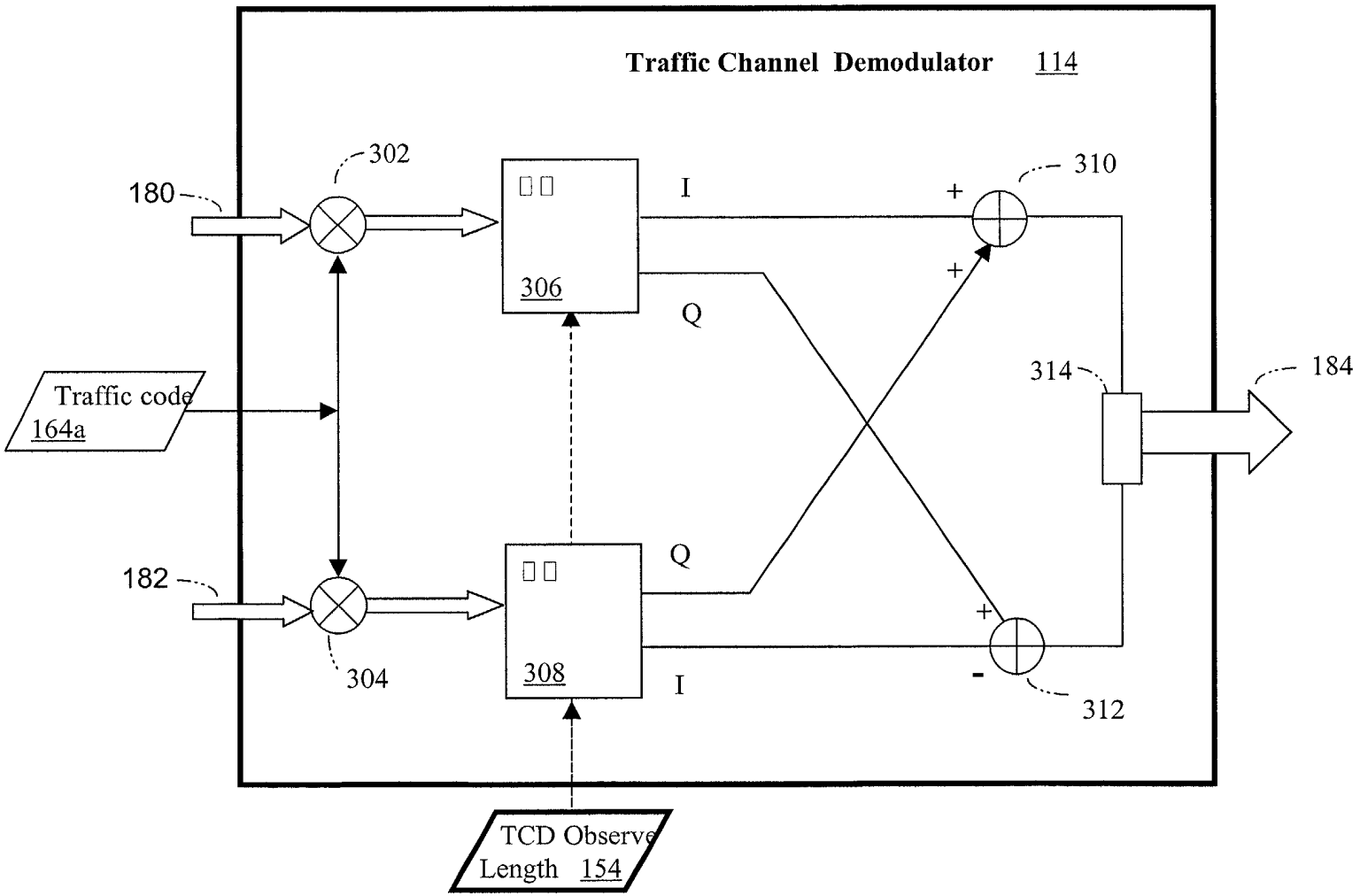
Traffic Channel Demodulator 114
180
302
306
I
Q
310
+
+
314
184
Traffic code
164a
182
304
308
Q
I
+
-
312
TCD Observe
Length 154

FIGURE 3

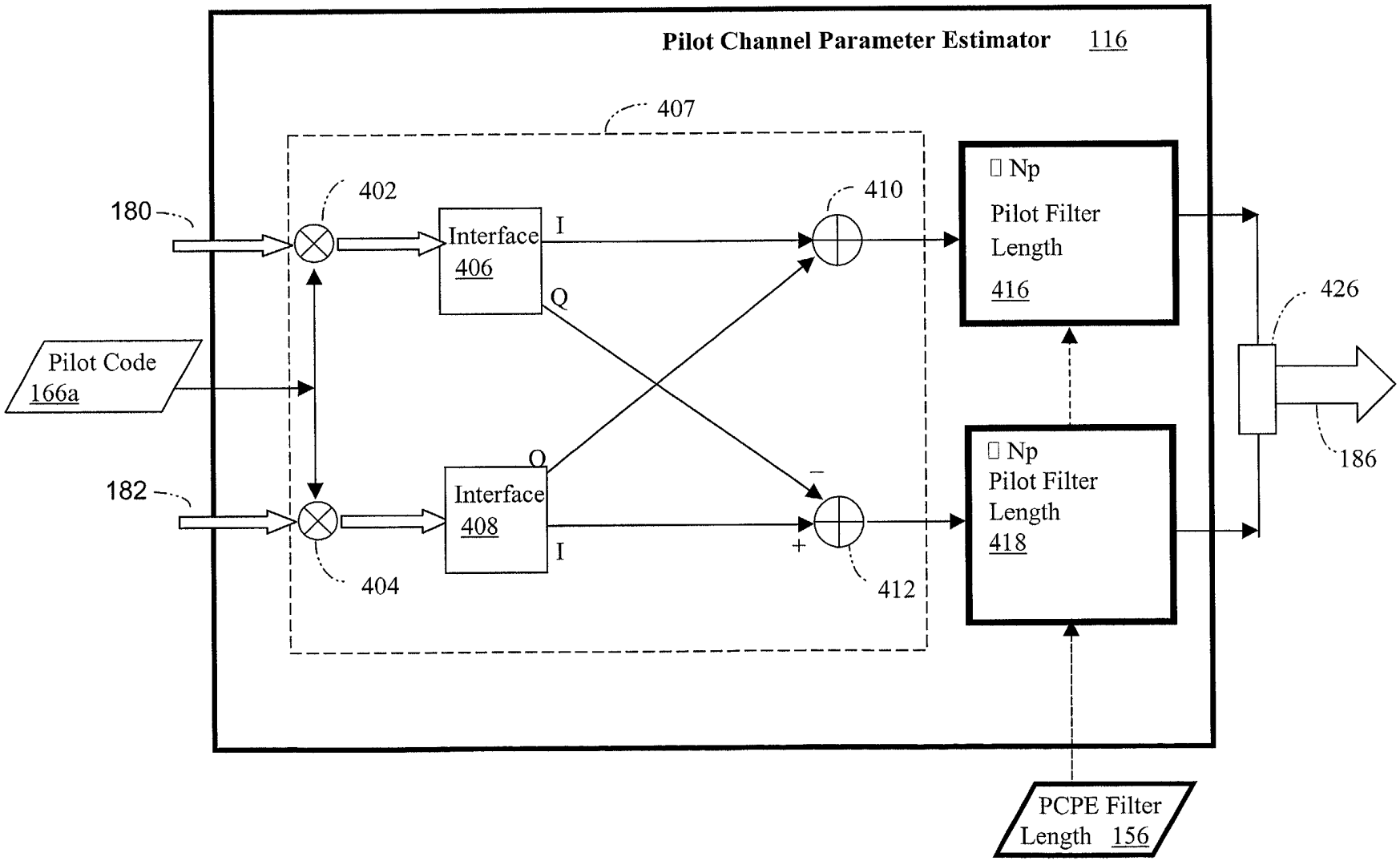
Pilot Channel Parameter Estimator 116
407
180
182
402
404
Interface 406
Interface 408
I
Q
Q
I
410
412
+
−
Pilot Code 166a
Np Pilot Filter Length 416
Np Pilot Filter Length 418
426
186
PCPE Filter Length 156

FIGURE 4

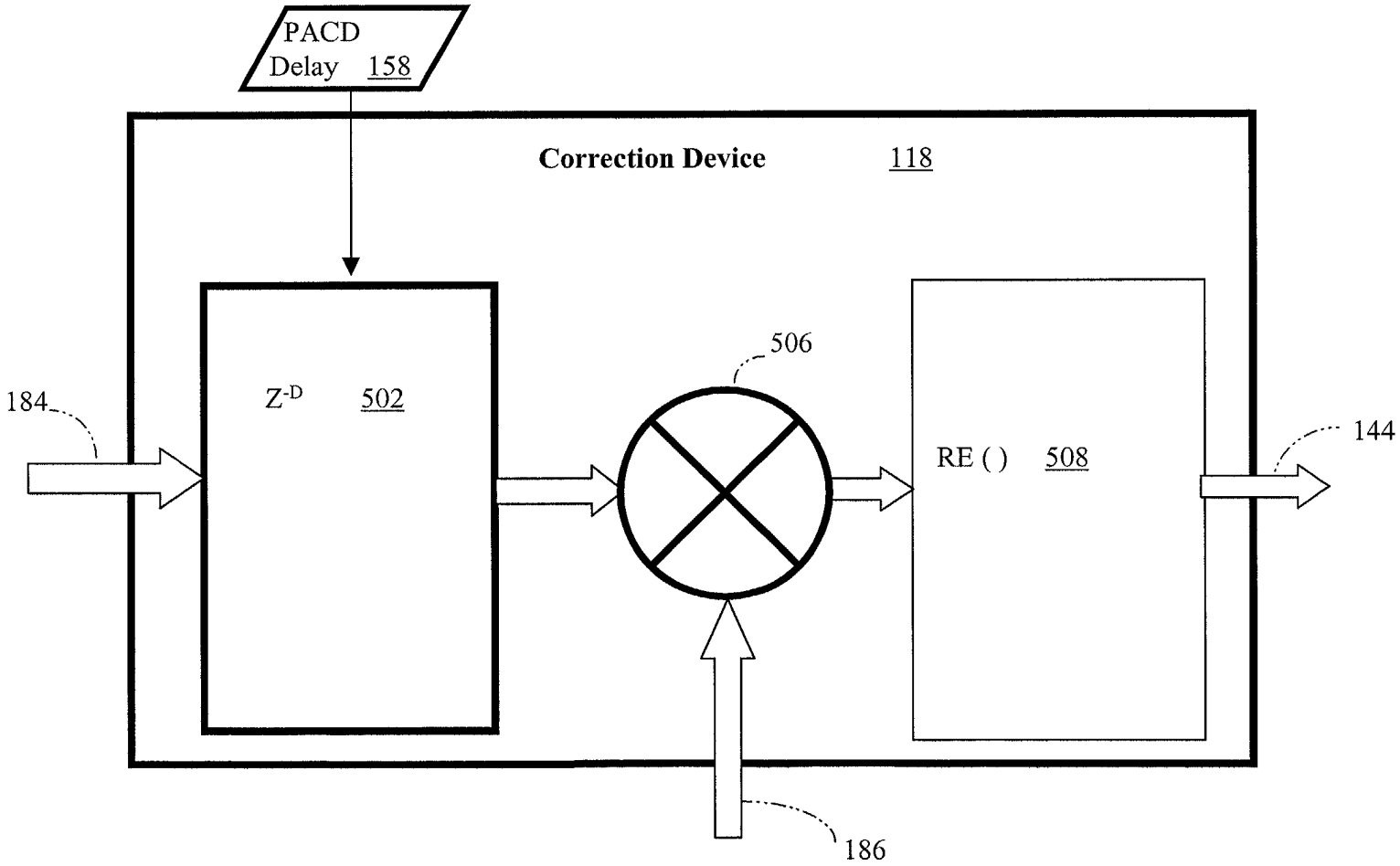
PACD
Delay 158
Correction Device 118
Z-D 502
506
184
RE ( ) 508
144
186

FIGURE 5

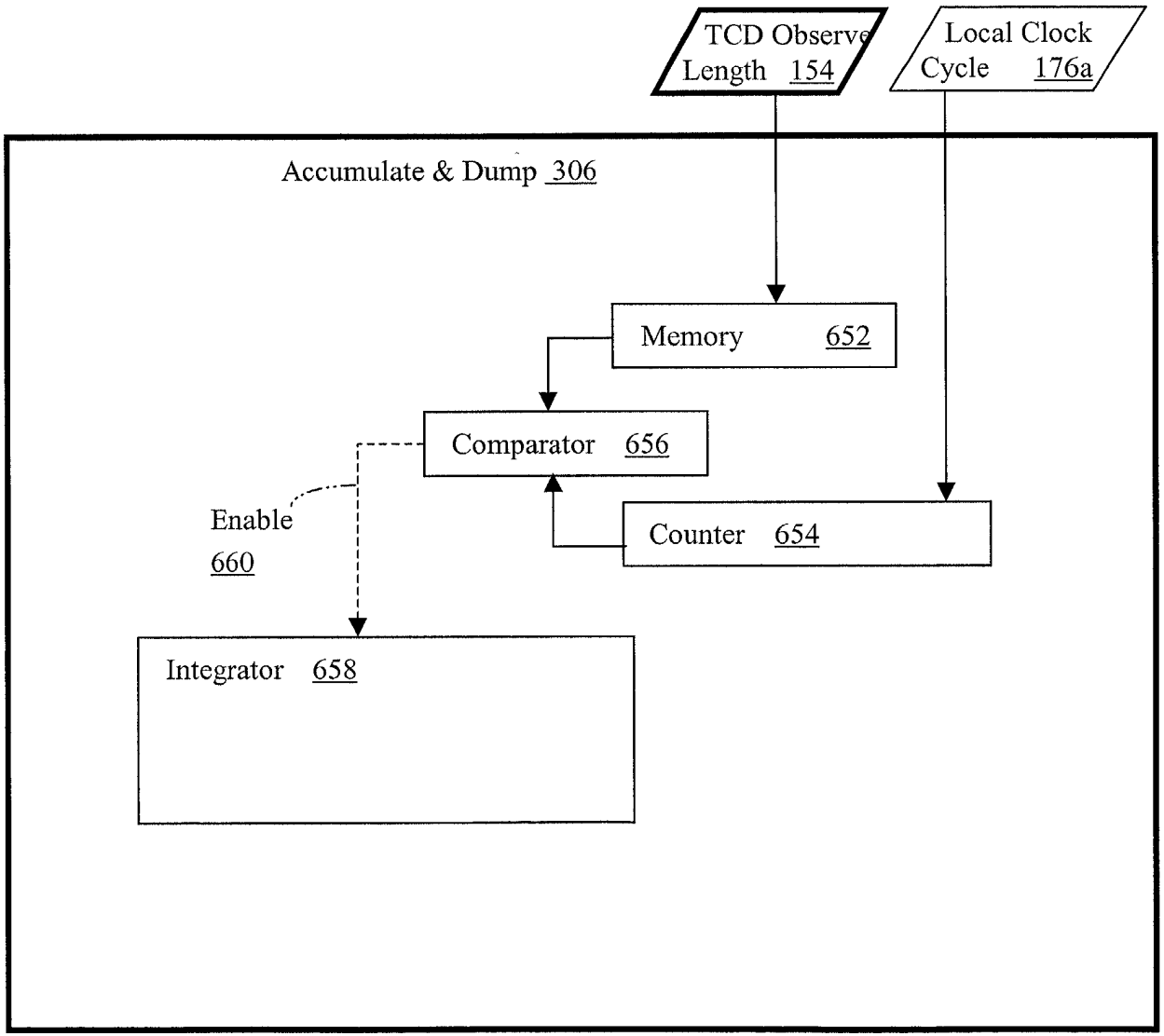
TCD Observe
Length 154
Local Clock
Cycle 176a
Accumulate & Dump 306
Memory 652
Comparator 656
Enable
660
Counter 654
Integrator 658

FIGURE 6

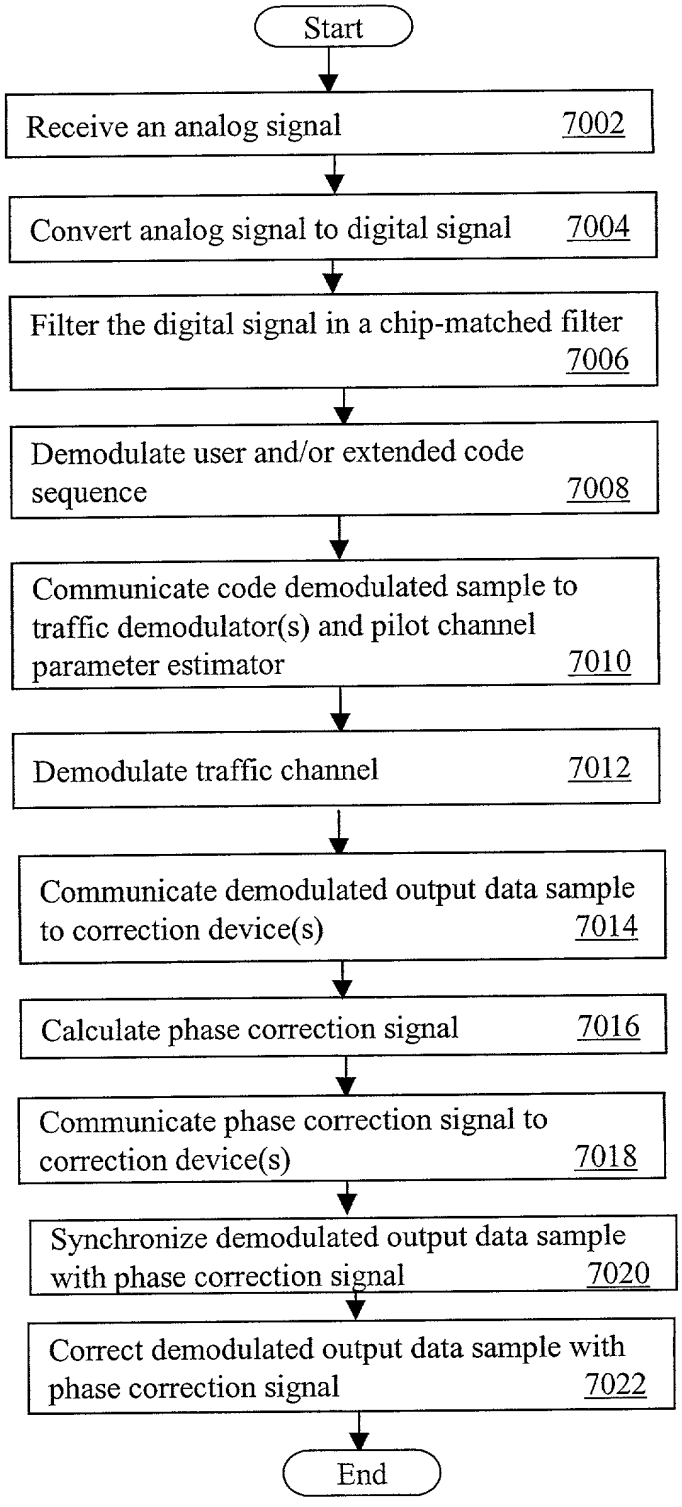
Start
7000
Receive an analog signal 7002
Convert analog signal to digital signal 7004
Filter the digital signal in a chip-matched filter 7006
Demodulate user and/or extended code sequence 7008
Communicate code demodulated sample to traffic demodulator(s) and pilot channel parameter estimator 7010
Demodulate traffic channel 7012
Communicate demodulated output data sample to correction device(s) 7014
Calculate phase correction signal 7016
Communicate phase correction signal to correction device(s) 7018
Synchronize demodulated output data sample with phase correction signal 7020
Correct demodulated output data sample with phase correction signal 7022
End

FIGURE 7A

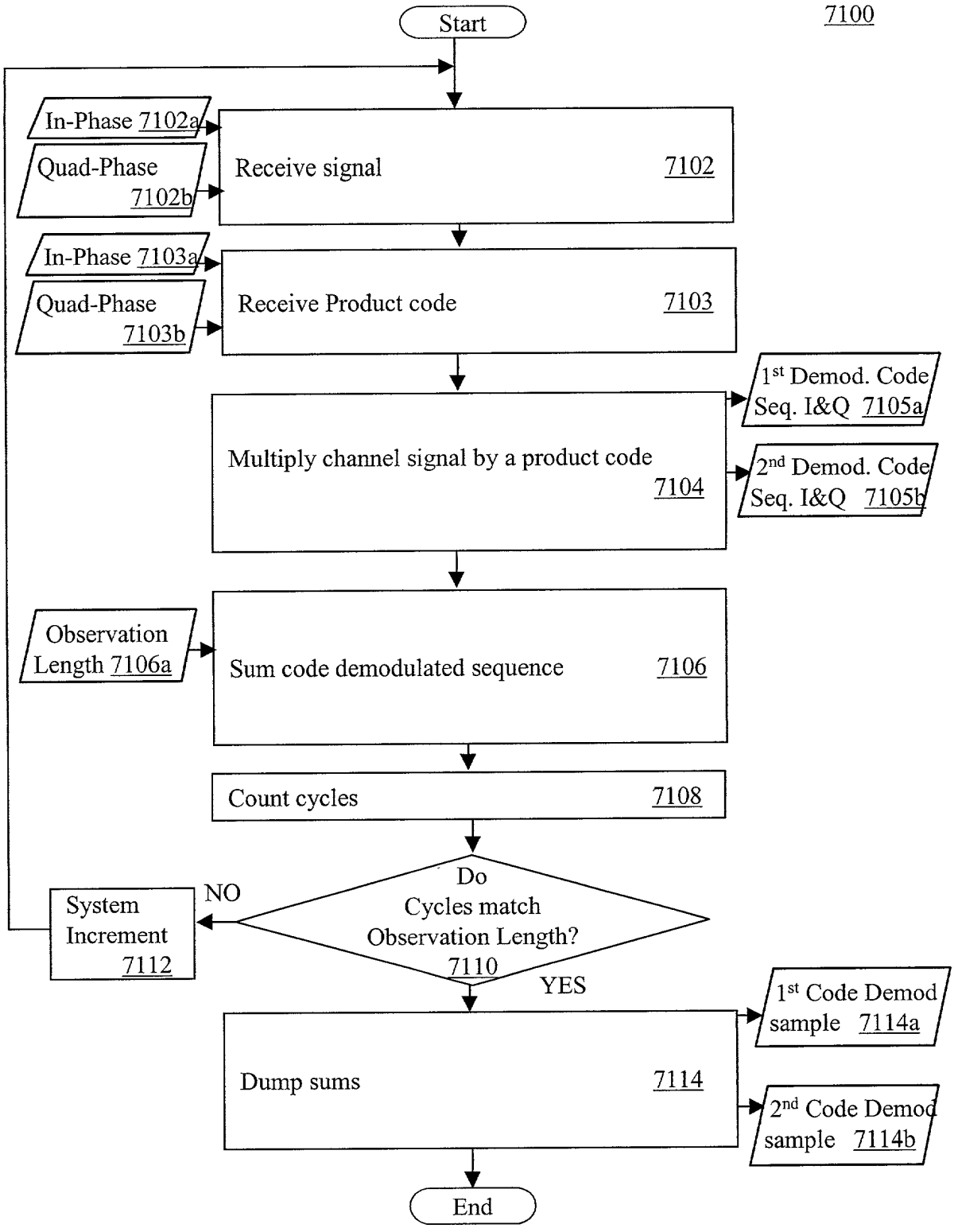
7100
Start
In-Phase 7102a
Quad-Phase 7102b
Receive signal 7102
In-Phase 7103a
Quad-Phase 7103b
Receive Product code 7103
1st Demod. Code Seq. I&Q 7105a
Multiply channel signal by a product code 7104
2nd Demod. Code Seq. I&Q 7105b
Observation Length 7106a
Sum code demodulated sequence 7106
Count cycles 7108
Do Cycles match Observation Length? 7110
NO
System Increment 7112
YES
1st Code Demod sample 7114a
Dump sums 7114
2nd Code Demod sample 7114b
End

FIGURE 7B

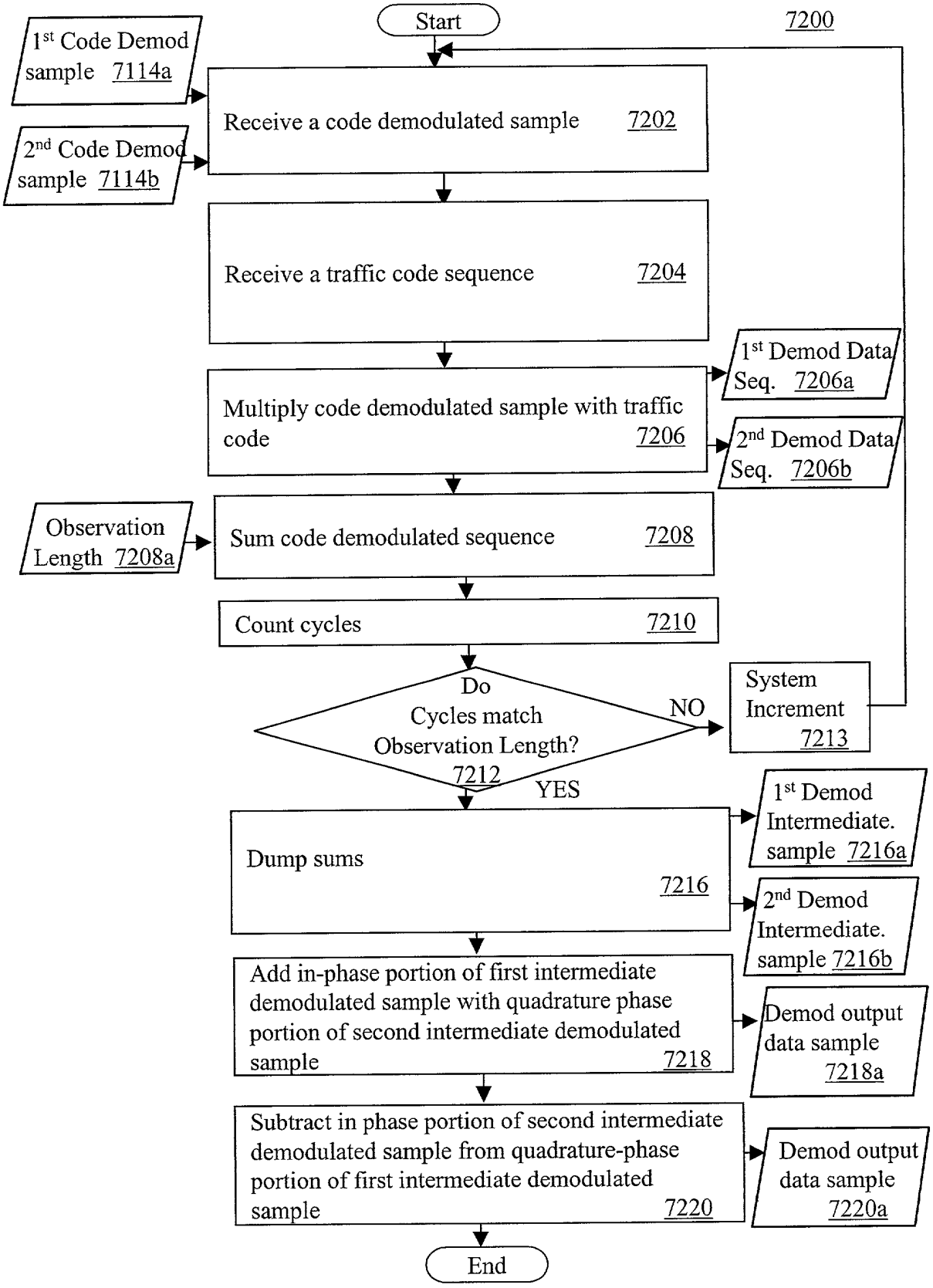
Start
7200
1st Code Demod sample 7114a
2nd Code Demod sample 7114b
Receive a code demodulated sample 7202
Receive a traffic code sequence 7204
Multiply code demodulated sample with traffic code 7206
1st Demod Data Seq. 7206a
2nd Demod Data Seq. 7206b
Observation Length 7208a
Sum code demodulated sequence 7208
Count cycles 7210
Do Cycles match Observation Length? 7212
NO
System Increment 7213
YES
Dump sums 7216
1st Demod Intermediate. sample 7216a
2nd Demod Intermediate. sample 7216b
Add in-phase portion of first intermediate demodulated sample with quadrature phase portion of second intermediate demodulated sample 7218
Demod output data sample 7218a
Subtract in phase portion of second intermediate demodulated sample from quadrature-phase portion of first intermediate demodulated sample 7220
Demod output data sample 7220a
End

FIGURE 7C

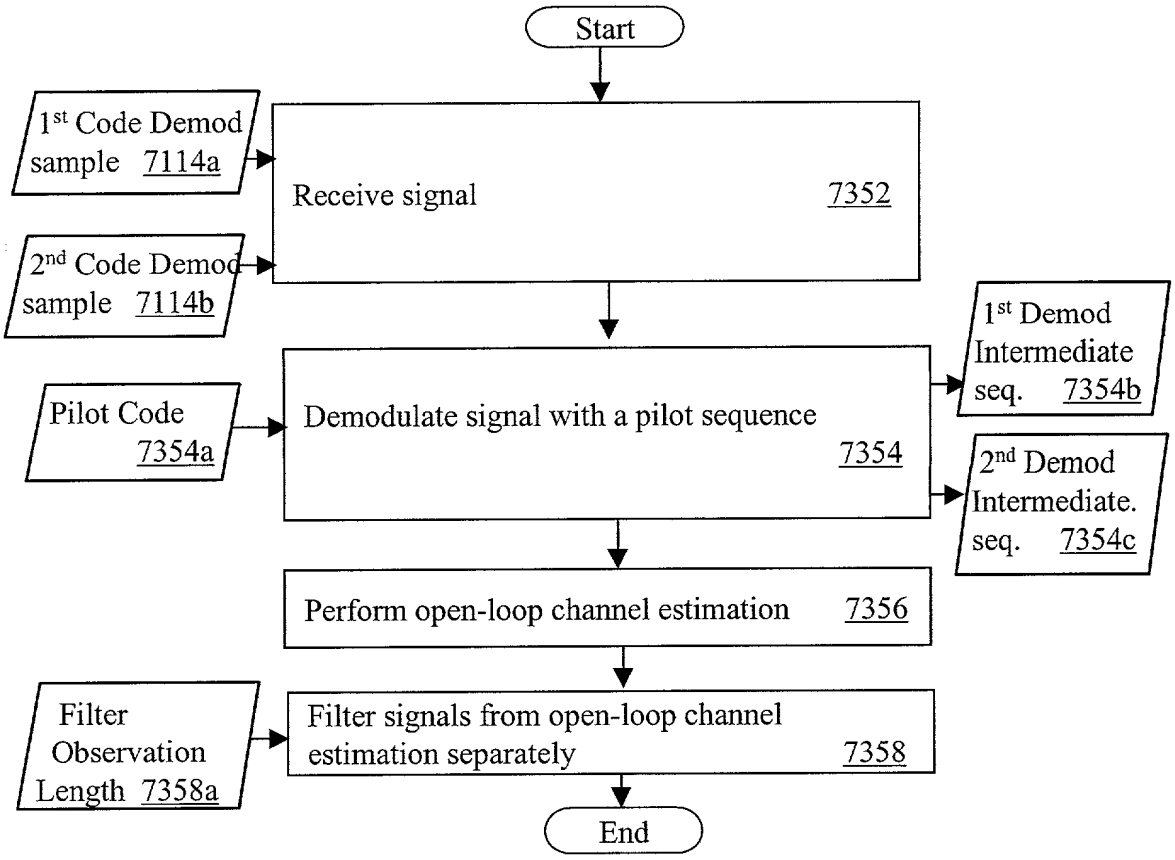

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FIGURE 7D

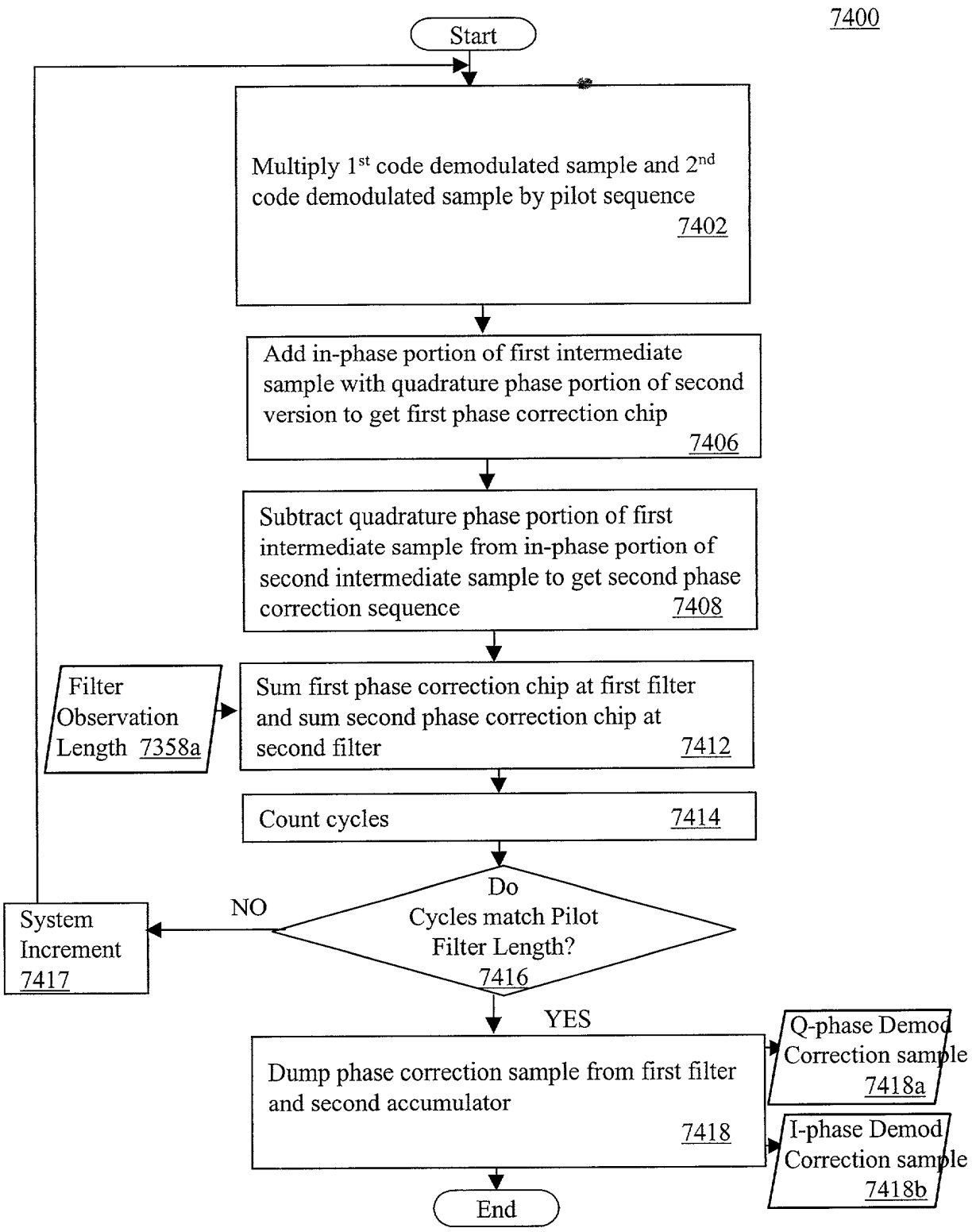
7400
Start
Multiply 1st code demodulated sample and 2nd code demodulated sample by pilot sequence 7402
Add in-phase portion of first intermediate sample with quadrature phase portion of second version to get first phase correction chip 7406
Subtract quadrature phase portion of first intermediate sample from in-phase portion of second intermediate sample to get second phase correction sequence 7408
Filter Observation Length 7358a
Sum first phase correction chip at first filter and sum second phase correction chip at second filter 7412
Count cycles 7414
Do Cycles match Pilot Filter Length? 7416
NO
System Increment 7417
YES
Dump phase correction sample from first filter and second accumulator 7418
Q-phase Demod Correction sample 7418a
I-phase Demod Correction sample 7418b
End

FIGURE 7E

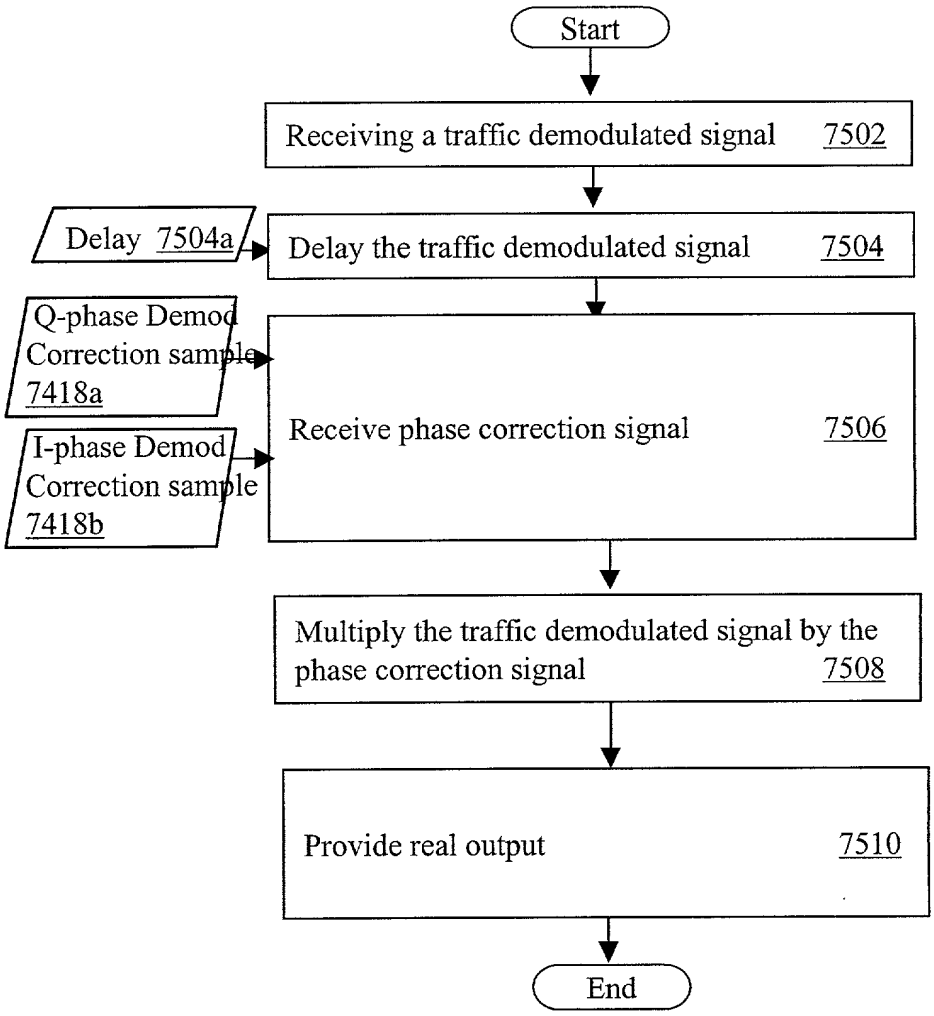
Start
Receiving a traffic demodulated signal 7502
Delay 7504a
Delay the traffic demodulated signal 7504
Q-phase Demod Correction sample 7418a
I-phase Demod Correction sample 7418b
Receive phase correction signal 7506
Multiply the traffic demodulated signal by the phase correction signal 7508
Provide real output 7510
End

FIGURE 7F